

February 20, 2003

MONTHLY REPORT

DROUGHT MONITORING WORK GROUP

MEMBERS

SCOTTY ABBOTT, USDA-FSA
BILL EWING, NM DEPARTMENT OF PUBLIC SAFETY
DONALD GALLEGOS, USACE
CHARLIE LILES, NOAA-NWS
DAVID LUCERO, NMDA
HOWARD MOSLEY, DOI-USBR
DAN MURRAY, USDA-NRCS
DENNIS ROMERO, NEW MEXICO OSE/ISC
CHIC SPANN, USDA-USFS
JERRY WALL, DOI-BLM
SCOTT WALTEMAYER, DOI-USGS

Drought Status for February 2003

Drought Status for February, 2003
National Weather Service, Albuquerque, NM

Discussion: As it typically does, El Niño helped produce a wetter than normal autumn in New Mexico. Water year precipitation (beginning October 1, 2002) was 121 percent of normal for the first three months. However, a weather pattern very uncharacteristic of El Niño dominated the United States from mid-December through early February. Much of New Mexico experienced the warmest January on record, and one of the driest. Temperatures for January averaged 5 to 10 degrees above normal, and precipitation averaged only 11 percent of normal. This brought the current water-year average down from 121 percent to 99 percent of normal by the end of January. However, the weather pattern began to change the second week of February, and some storms have begun affecting New Mexico again.

In response to the recent dry spell, the shorter-term drought indices have begun showing worsening drought. However, the present hydrologic drought is being primarily driven by the multi-year deficits. Over the past 3 years, deficits have averaged a total of 9 inches in climate division 2 (northern mountains), while there are locations within that climate division with 5 year deficits exceeding 15 inches. These multi-year accumulated deficits are allowing the hydrologic drought to linger and provides significant potential for worsening, especially over the western and central portions of New Mexico.

Palmer Index (monthly average) for 2002/2003

Div.	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb 8
1	-5.0	-4.7	-1.6	+0.3	+2.3	+3.0	+2.7	+1.4
2	-6.3	-6.7	-5.0	-3.0	-0.6	+0.2	+0.3	-0.8
3	-2.8	-3.1	-0.7	+1.1	+2.2	+2.4	+2.0	+1.3
4	-4.0	-3.2	-0.7	+0.4	+1.3	+2.3	+2.0	+1.1
5	-2.3	-0.3	+1.7	+2.6	+2.7	+2.6	+1.7	+0.7
6	-4.0	-3.9	-3.0	-2.4	-1.2	-0.2	-0.4	-1.7
7	-1.7	-2.2	-0.6	+0.6	+1.6	+2.0	+1.7	+0.7
8	-2.3	-0.8	-0.4	-0.2	-0.2	+0.4	+0.1	-0.4

Below are some 2001-2002 (2 year) and 1998-2002 (5 year) variations from normal for specific locations around the state:

Location	2 year	5 year
Albuquerque	-4.13	- 3.30
Animas	-4.67	- 7.98
Chama	-6.56	- 4.24
Cimarron	-8.80	+ 1.02
Clayton	-9.53	-10.54
Clovis	-2.14	- 4.65
Deming	-3.24	- 1.68
Gila Hot Springs	-7.46	-15.35
Jemez Springs	-10.44	-15.40
Las Vegas	-11.42	-16.76
Los Alamos	-10.53	-18.31

Navajo Dam	-7.90	- 5.81
Raton	-9.65	- 7.59
Roswell	-3.72	- 3.05
Ruidoso	-6.18	-11.88
Santa Fe	-7.48	-10.72
Tatum	-1.99	- 6.64
Wolf Canyon	-6.94	-12.16

Below are average variations from normal for the climate divisions in New Mexico. These data represent analysis of approximately 150 reporting stations. The 60-month deficits are for the period January 1998 through December 2002.

Division	12 month	24 month	36 month	48 month	60 month
1	-1.4	-2.1	-2.6	-2.5	-0.2
2	-3.8	-7.1	-9.0	-6.9	-7.2
3	-2.2	-3.9	-3.8	-0.3	-0.6
4	-0.7	-0.1	+0.1	+0.5	+2.4
5	+0.5	-0.4	+1.3	+2.6	+3.9
6	-2.1	-4.6	-4.4	-5.5	-4.6
7	+0.3	-3.4	-3.9	-2.6	-5.8
8	-1.0	-3.2	-1.8	-0.9	-0.8

Calendar Year 2003 and Water Year 2003 (thru Jan) Precipitation for New Mexico
National Weather Service Albuquerque, NM

<u>Calendar Year 2003 and Water Year 2003 (thru Jan) Precipitation for New Mexico</u>							
National Weather Service Albuquerque, NM							
	2003 (Jan - Jan)				Water Year 2003 (Oct - Jan 03)		
<u>Location</u>	<u>Obs</u>	<u>Normal</u>	<u>%Normal</u>		<u>Obs</u>	<u>Normal</u>	<u>% Normal</u>
<i>Northwest Plateau</i>							
AZTEC RUINS N/M	0.33	0.79	42%		3.71	3.40	109%
FENCE LAKE	0.31	0.96	32%		4.45	4.21	106%
FRUITLAND 2E	0.18	0.56	32%		2.65	2.52	105%
GALLUP FAA APRT	0.01	0.90	1%		2.10	3.68	57%
LINDRITH 2SE	0.05	1.08	5%		3.52	4.29	82%
NAVAJO DAM	0.03	1.06	3%		3.69	4.66	79%
<i>Northern Mountains</i>							
ALCALDE	0.06	0.38	16%		3.00	2.48	121%
CANJILON R/S	0.34	1.16	29%		4.29	4.33	99%
CERRO	0.05	0.57	9%		2.50	3.05	82%
CHAMA	0.10	1.89	5%		6.45	6.73	96%
CIMARRON 4SW	0.35	0.38	92%		2.11	2.54	83%
GHOST RANCH	0.00	0.67	0%		3.00	2.84	106%
JEMEZ SPRINGS	0.00	0.96	0%		3.45	4.42	78%
JOHNSON RANCH	0.00	0.72	0%		2.91	3.12	93%
LAS VEGAS FAA APRT	0.00	0.34	0%		1.89	2.66	71%
LOS ALAMOS	0.00	0.84	0%		3.83	4.08	94%
RATON KRTN	0.05	0.38	13%		2.74	2.30	119%

RED RIVER	0.56	1.06	53%		4.01	4.89	82%
SANTA FE 2	0.00	0.67	0%		2.82	3.61	78%
WOLF CANYON	0.00	1.83	0%		6.73	6.80	99%
Northeastern Plains							
CLAYTON APRT	0.00	0.27	0%		2.27	2.23	102%
CLOVIS	0.00	0.44	0%		4.51	3.34	135%
CONCHAS DAM	0.00	0.36	0%		3.30	2.40	138%
MOSQUERO 1NE	0.00	0.39	0%		2.71	2.54	107%
PORTALES	0.00	0.40	0%		4.36	2.94	148%
TUCUMCARI 4NE	0.01	0.36	3%		3.43	2.84	121%
Southwestern Mountains							
FORT BAYARD	0.15	0.88	17%		3.81	3.97	96%
GILA HOT SPRINGS	0.19	0.99	19%		2.27	4.96	46%
GRANTS APRT	0.00	0.51	0%		2.97	2.87	103%
QUEMADO ESTATES	0.17	0.83	20%		3.93	3.48	113%
RESERVE R/S	0.25	1.07	23%		3.84	5.19	74%
Central Valley							
ABQ WSFO APRT	0.00	0.37	0%		1.39	2.12	66%
BOSQUE DEL APACHE	0.00	0.37	0%		1.60	2.27	70%
LOS LUNAS 3SSW	0.00	0.36	0%		1.88	2.43	77%
SOCORRO	0.00	0.40	0%		2.10	2.41	87%
Central Highlands							
CAPITAN	0.00	0.65	0%		4.10	2.88	142%
CLOUDCROFT	0.20	1.55	13%		8.66	5.80	149%
ESTANCIA	0.00	0.54	0%		2.61	2.96	88%
MOUNTAINAIR R/S	0.00	0.71	0%		2.41	3.46	70%
RUIDOSO 2NNE	0.19	1.19	16%		4.81	5.21	92%
Southeastern Plains							
ARTESIA 6S	0.00	0.39	0%		3.87	2.49	155%
CARLSBAD	0.00	0.38	0%		3.05	2.73	112%
FORT SUMNER	0.00	0.41	0%		2.64	2.96	89%
ROSWELL CLIMATE	0.05	0.43	12%		3.38	2.72	124%
SANTA ROSA	0.00	0.36	0%		3.66	2.64	139%
TATUM	0.00	0.38	0%		3.53	2.92	121%
Southern Desert							
ANIMAS	0.02	0.63	3%		3.60	3.09	117%
DEMING	0.03	0.44	7%		3.55	2.36	150%
FAYWOOD	0.14	0.72	19%		2.95	3.47	85%
STATE U LAS CRUCES	0.00	0.51	0%		2.65	2.60	102%
TRUTH OR CONSEQ	0.01	0.54	2%		1.89	3.86	49%
TULAROSA	0.03	0.49	6%		4.42	2.56	173%
Divisional Averages							
	2003 (Jan - Jan)				Water Year 2003 (Oct - Jan 03)		
Climate Division		% NrmI				% NrmI	
Northwest Plateau		17%				88%	
Northern Mountains		13%				92%	
Northeastern Plains		0%				126%	
Southwestern Mountains		18%				82%	

Central Valley		0%				76%	
Central Highlands		8%				111%	
Southeastern Plains		2%				122%	
Southern Desert		7%				106%	
All Divisions		11%				99%	

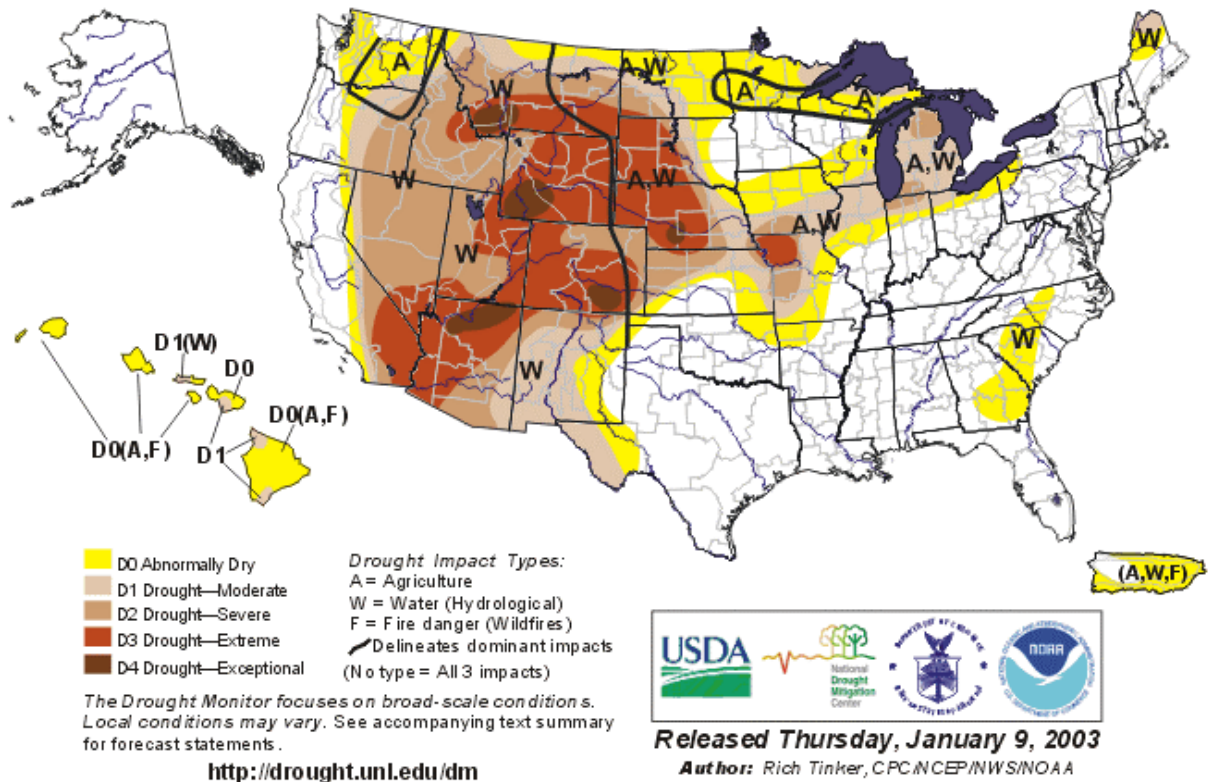
Long-range Forecast and Discussion: El Niño is likely to enhance precipitation during the late winter and spring. Typically, El Niño produces the greatest amount of precipitation (relative to normal) in the spring. Models suggest the demise of this El Niño is likely by summer. Consequently, through spring, some continued improvement in the meteorological and agricultural drought aspects are likely. The hydrologic drought outlook is more complicated. With a wet spring in the east, the hydrologic drought over that section of the state could show some improvement. However, a wet spring over the western portion of the state is not likely to lead to much improvement, and worsening of the hydrologic drought over the west and central sections of New Mexico is possible.

USDA Forest Service
Southwestern Region, R3
Drought Update

U.S. Drought Monitor

January 7, 2003

Valid 7 a.m. EST



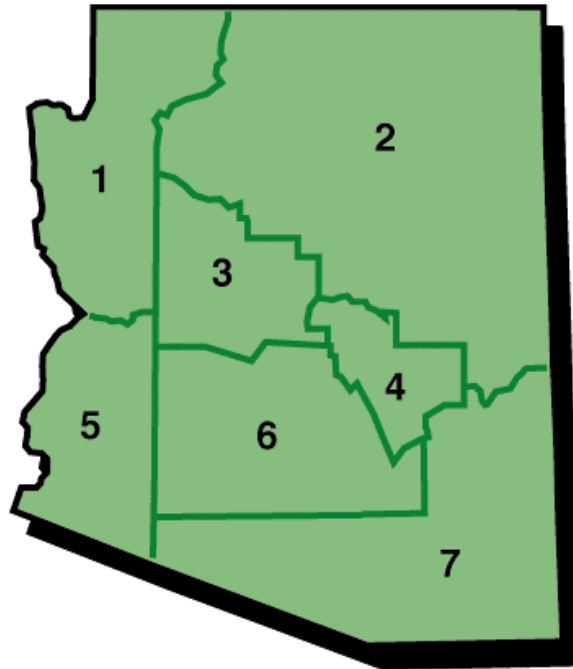
Author: Rich Tinker, Climate Prediction Center / NCEP / NWS / NOAA

The 2002 calendar year brought record or near-record dryness to several locations across the Rockies and Intermountain West. At least 10 cities set new calendar year precipitation records, including Phoenix, AZ (2.82", tying 1956) and Denver, CO (7.48", besting the 7.51" measured in 1954). Yuma, AZ recorded only 0.03" of precipitation for the year, which was less than 15% of their previous record low (0.25" in 1956).

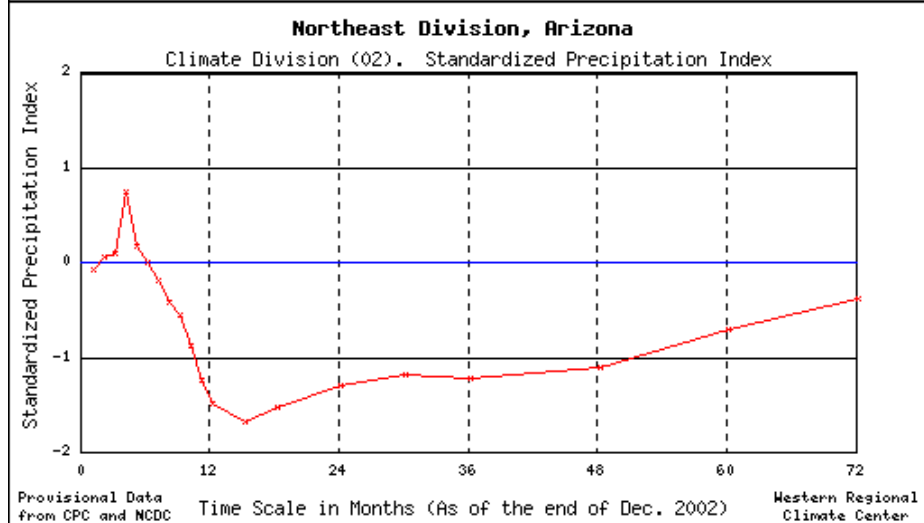
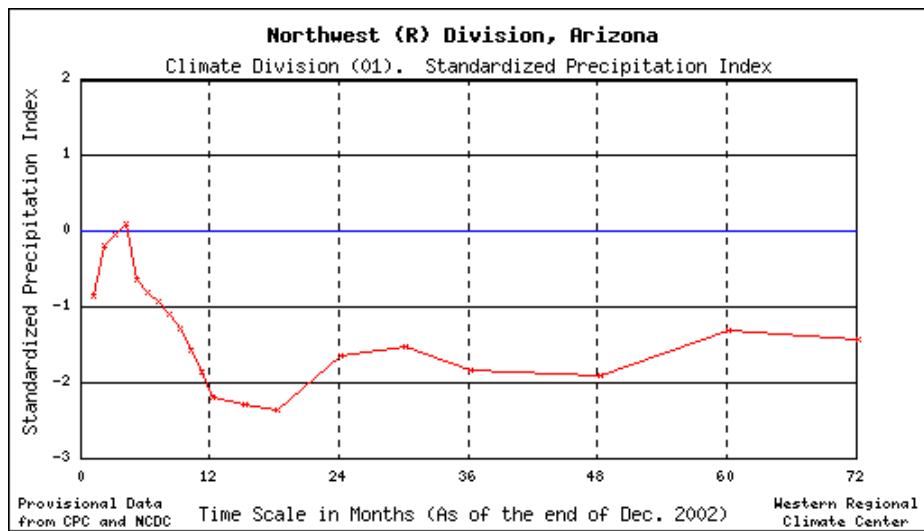
In addition, some extraordinary statewide-average year and multi-year precipitation amounts were reported. Since records began in 1895, 2002 was the driest year ever in Colorado, and the 3rd or 4th driest in 108 years for Nevada, Arizona, Wyoming, and Nebraska. Also, Wyoming experienced record dryness for the 2-, 3-, and 4-year periods ending 2002 while the 3- and 4-year periods were the 2nd driest on record for Idaho.

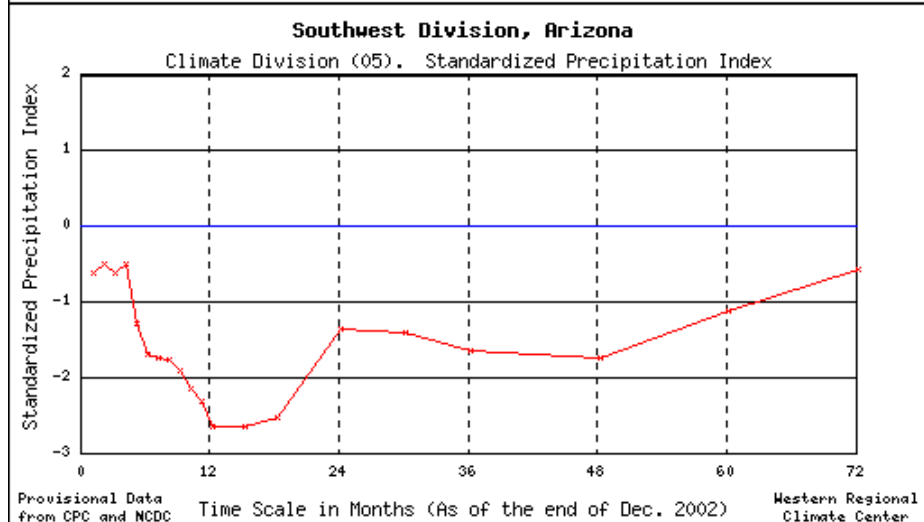
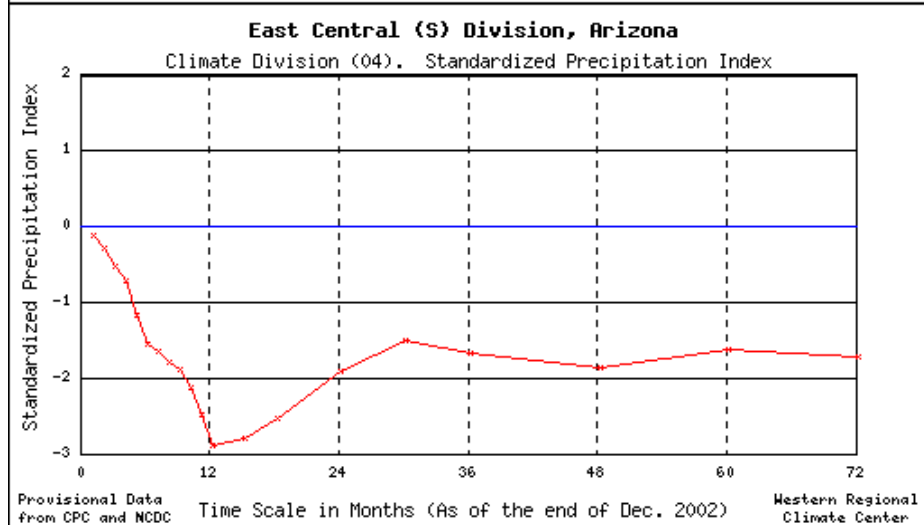
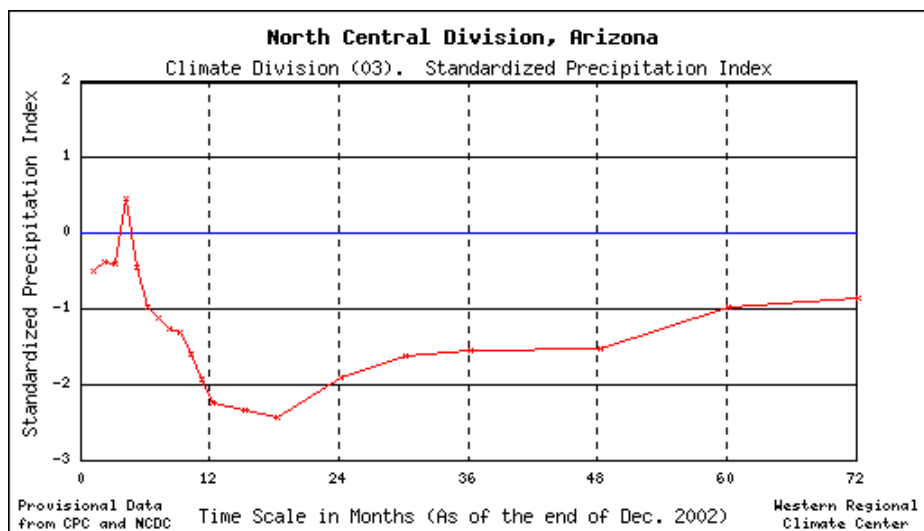
The dryness has drawn down reservoirs throughout the region. Statewide storage totals for major reservoirs at the end of December were below half of normal for the date in Nevada and New Mexico, and only slightly more than 50% of normal in Oregon, Arizona, Utah, and Colorado. Portions of Idaho and Montana have similar conditions, but statewide storage totals across the northern tier of the West are a bit higher than they are farther south.

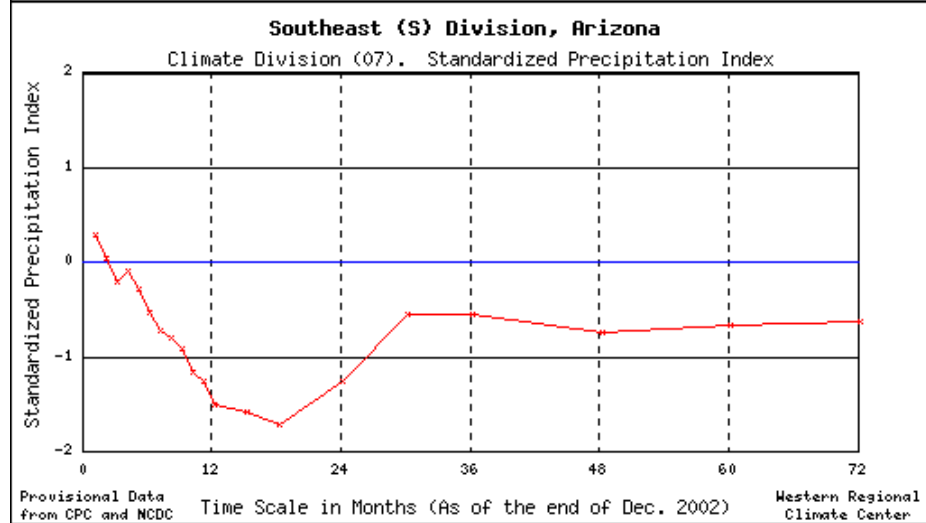
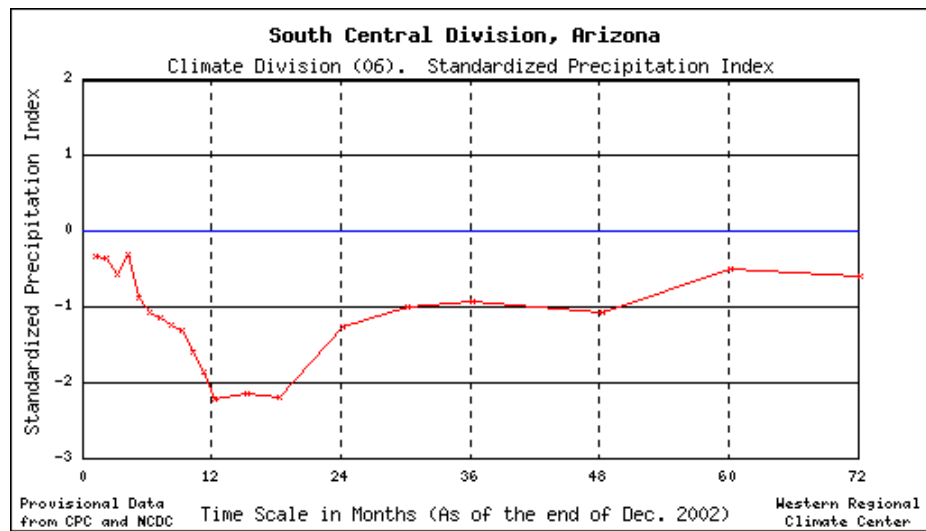
The mid-point of the October-April snowpack recharge season is quickly approaching, and many areas across the West and Rockies need to start receiving heavier and more-regular precipitation soon to avoid serious drought impacts during the ensuing summer and autumn.

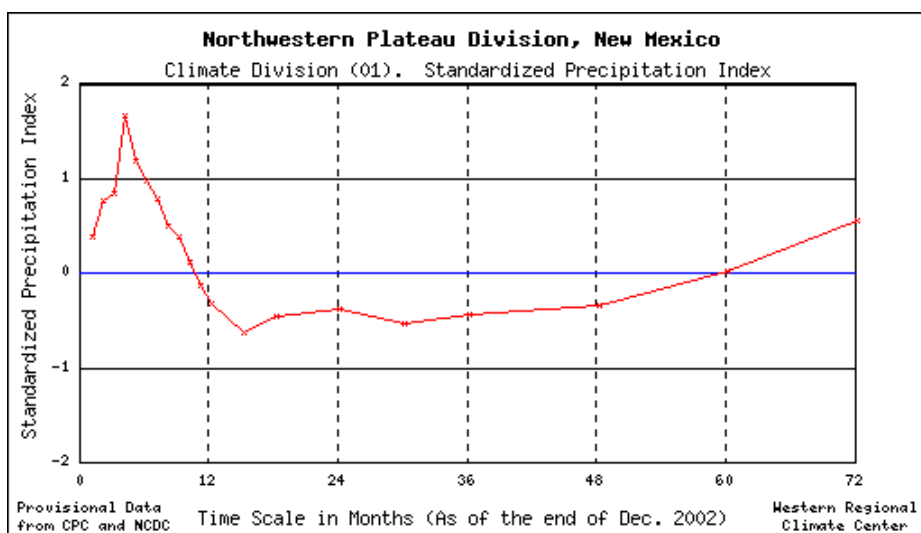
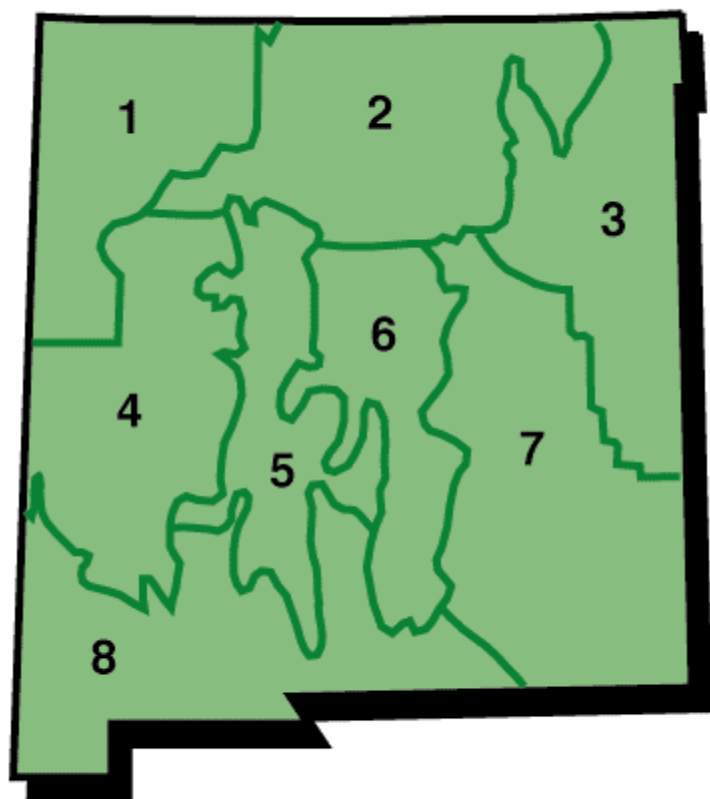


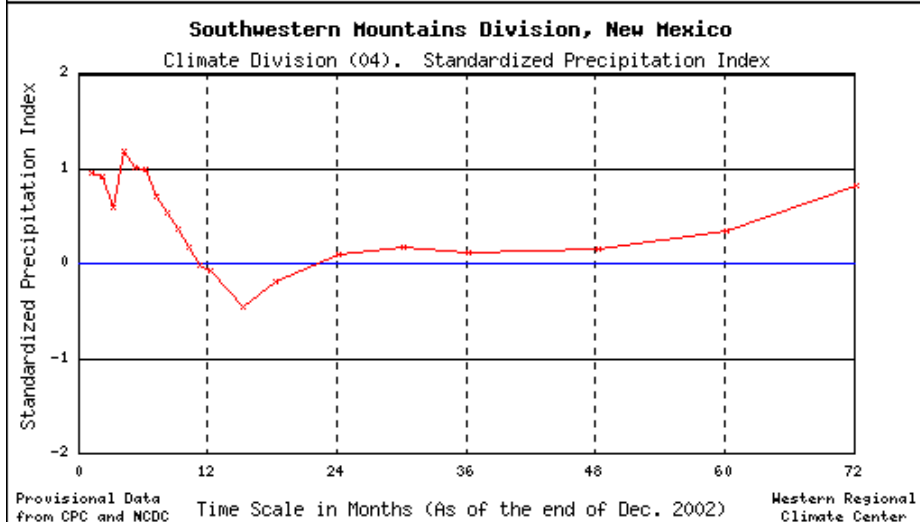
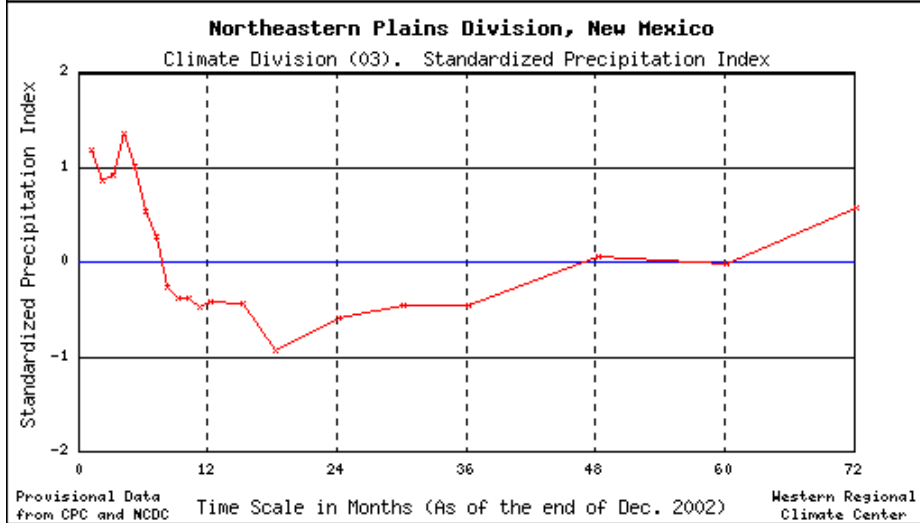
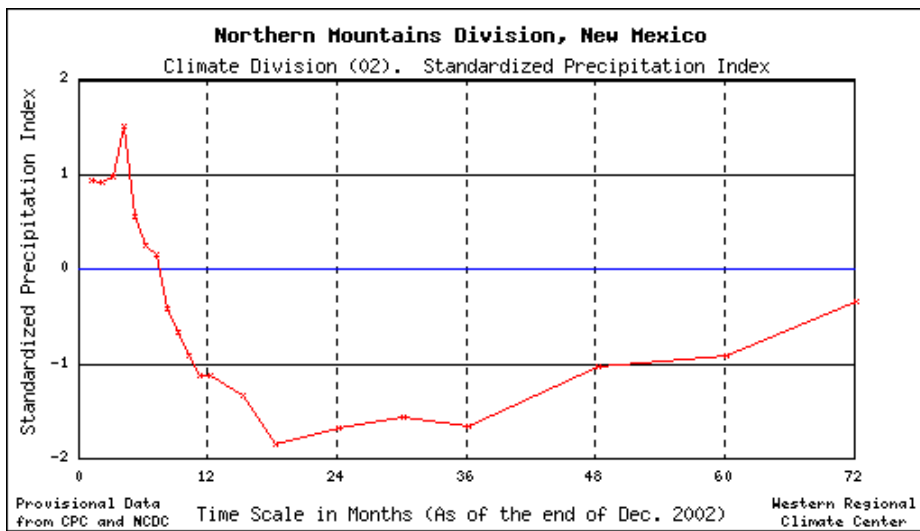
SPI Values	
3.00 and above	know how to swim?
2.00 to 2.99	extremely wet
1.25 to 1.99	very wet
0.75 to 1.24	moderately wet
-0.74 to 0.74	near normal
-0.75 to -1.25	moderately dry
-1.25 to -1.99	very dry
-2.00 to -2.99	extremely dry
-3.00 and less	where's the nearest oasis?

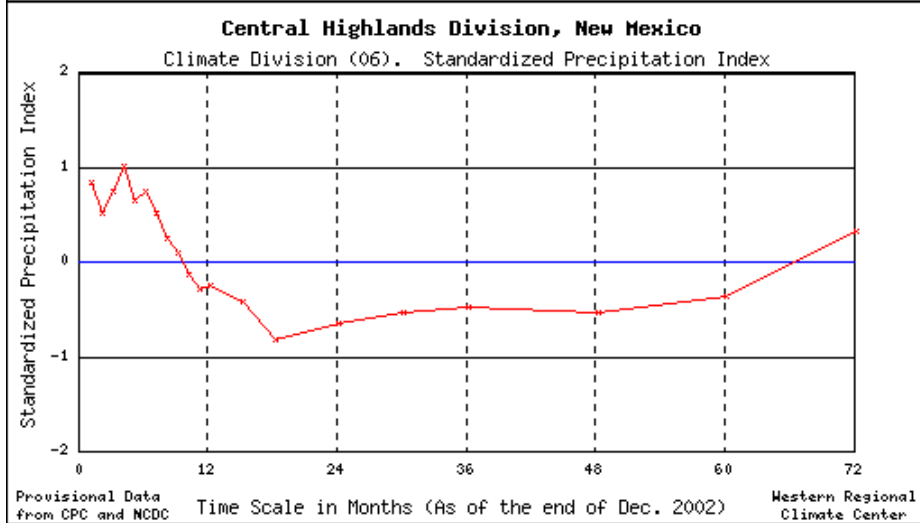
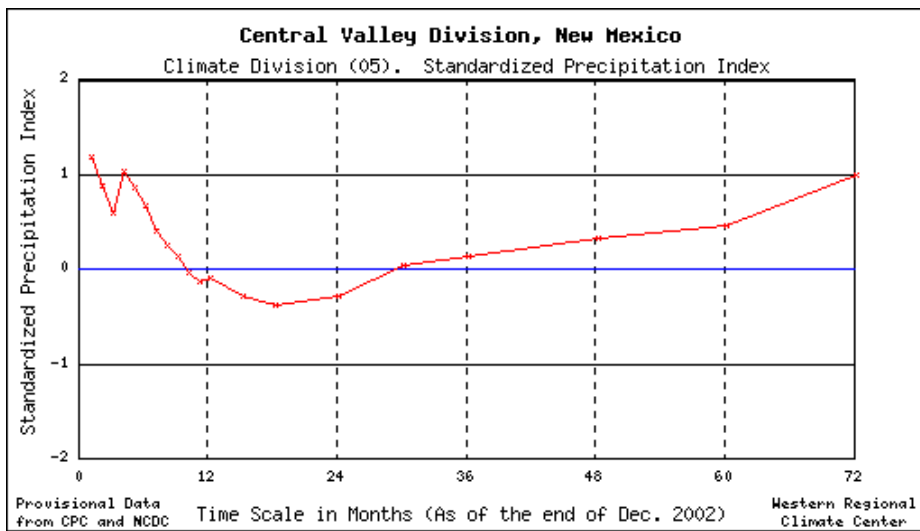


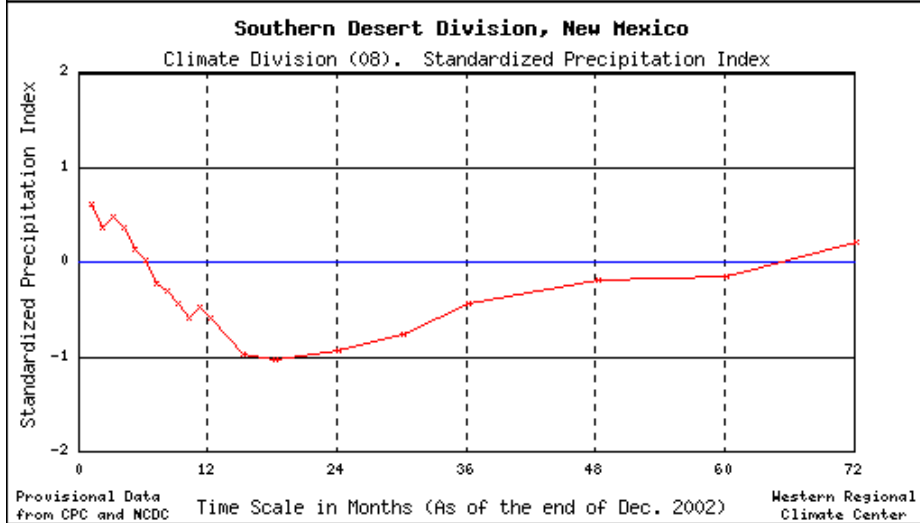
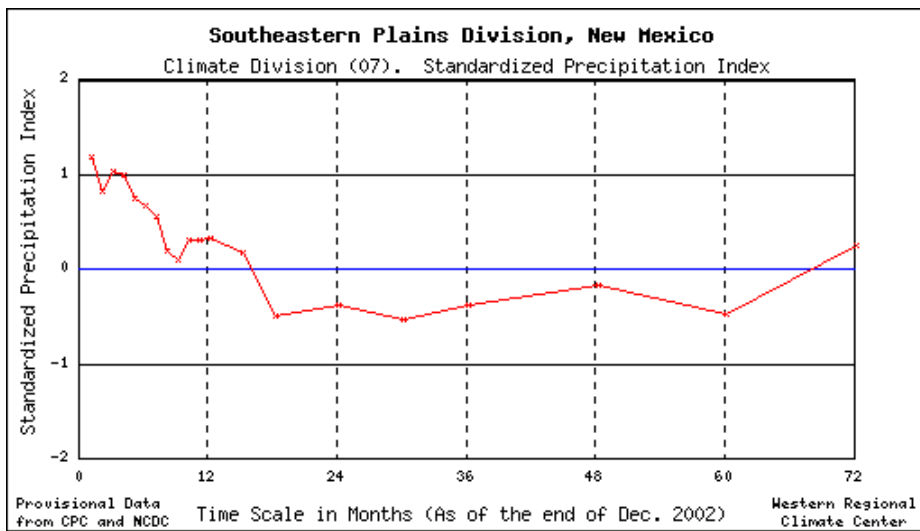












USDA-NRCS Drought Monitoring Report

Mountain Precipitation

High elevation precipitation for the water-year varies between 50 and 101 percent of average across the state. The southwest basins including San Francisco, Gila and Mimbres basins are well below average. Total precipitation in the Sangre de Cristo Mountains, Pecos, Cimarron and Zuni/Bluewater basins is near average. The Rio Chama, Jemez, San Juan, and Animas basins are below average in water-year precipitation.

As of WEDNESDAY: FEBRUARY 19 , 2003

Basin	Year-to-Date Precipitation Percent of Average
RIO CHAMA RIVER BASIN	71%
SANGRE DE CRISTO MOUNTAIN RANGE BASINS	94%
JEMEZ RIVER BASIN	87%
SAN FRANCISCO RIVER BASIN	64%
GILA RIVER BASIN	55%
MIMBRES RIVER BASIN	50%
PECOS RIVER BASIN	96%
SAN JUAN RIVER HEADWATERS	73%
ANIMAS RIVER BASIN	74%
CIMARRON RIVER BASIN	101%
ZUNI/BLUEWATER RIVER BASIN	100%
RIO HONDO BASIN	*

Legend:	<70%	70-90%	91-110%	111-130%	>130%
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* = Data are not available or data may not provide a valid measure of conditions for over half of the sites within the basin.

National Water & Climate Center Links:

SURFACE WATER SUPPLY INDEX

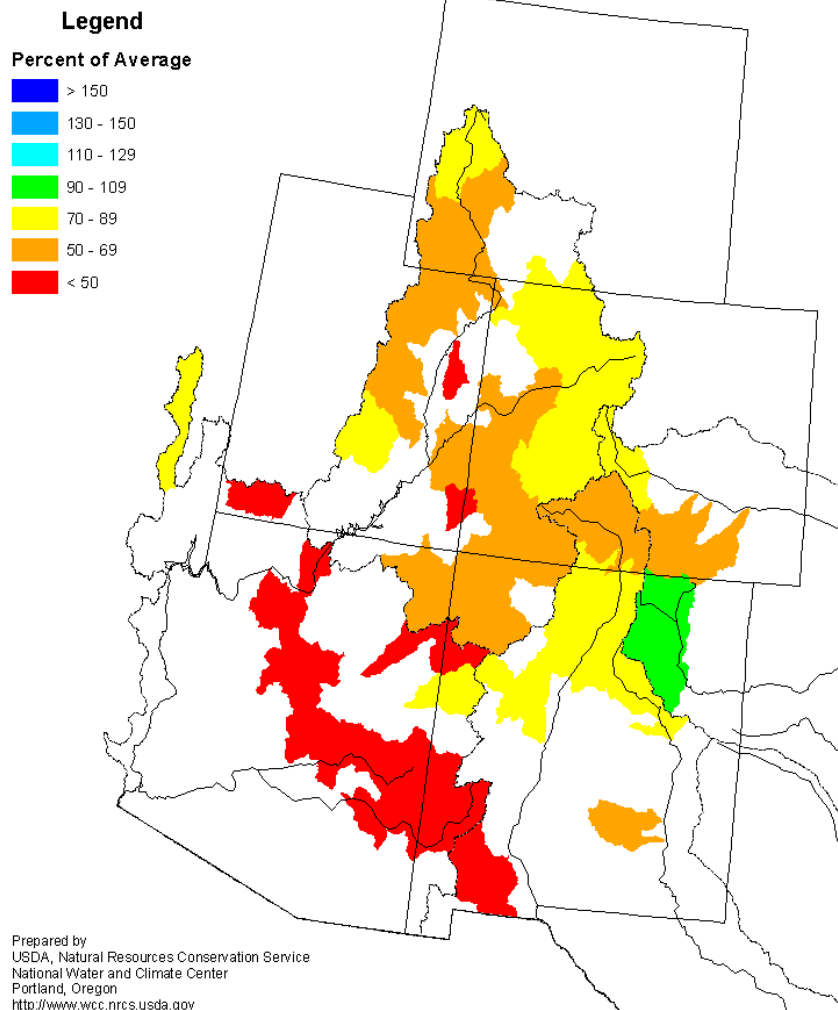
Basin	Condition	Index
Canadian	Severe Drought	-3.1
Bluewater	Moderate Drought	-2.5
Mimbres	Moderate Drought	-1.6
Rio Hondo	Normal	-1.2
Zuni	Normal	-0.6
Pecos	Severe Drought	-3.2
Rio Grande	Moderate Drought	-2.3
San Juan	Moderate Drought	-2.2
San Francisco		
Upper Gila	Normal	-1.0

Snowpack

February 19, 2003, SNOTEL data indicates the San Juan/Animas Basin is well below average at 55 and 65 percent, along with the southwest at less than 45 % of normal. The Sangre de Cristo Mts., Pecos and Cimarron basins are currently at near normal snowpack levels.

Statewide the snowpack on February 1 ranged between 30 and 98 percent of average. The Canadian and Pecos. basins are near normal. The Rio Grande Basin is below average with the remainder of the state at well below average ranging between 30 and 60 percent of average

Mountain Snowpack as of February 1, 2003



WATER SUPPLY FORECASTS

The expected spring snowpack runoff is for mostly well below average conditions. Only twenty percent of the forecast points are expected to yield an average runoff volume, fifteen for below normal, and sixty-five percent at well below normal flows.





































<u>Basin</u>	<u>Forecast</u>	
Canadian	Well below Normal to Below Normal	(50-76%)
Bluewater	Well below Normal	(64%)
Mimbres	Well below Normal	(60%)
Rio Hondo	Well below Normal	(50%)
Zuni	Well below Normal	(60%)
Pecos	Normal	(90-95%)
Rio Grande	Well below Normal to Normal	(40-100%)
San Juan	Well below Normal	(53-60%)
San Francisco		
Upper Gila	Well below Normal	(43-57%)

RESERVOIRS

The total statewide storage in the thirteen major reservoirs is at 45 percent of the 30-year average. This is 54 percent of last years February 1 storage. Twelve of the thirteen reservoirs are now below 50 percent of what is normally stored.

The graph on the following page shows reservoir levels at key locations throughout the state at the end of February.

FOR THE END OF FEBRUARY 2003 (Data are provisional and subject to change)

Reservoir	Current as Percent of Capacity/Average/Last Year	
ABIQUIU	% of Capacity	 8%
	% of Average	 41%
	% of Last Year	 28%
BRANTLEY	% of Capacity	 13%
	% of Average	 74%
	% of Last Year	 143%
CABALLO	% of Capacity	 15%
	% of Average	 43%
	% of Last Year	 63%
CONCHAS	% of Capacity	 10%
	% of Average	 13%
	% of Last Year	 59%
COSTILLA	% of Capacity	 18%
	% of Average	 48%
	% of Last Year	 56%
EL VADO	% of Capacity	 8%
	% of Average	 12%
	% of Last Year	 15%
ELEPHANT BUTTE	% of Capacity	 20%
	% of Average	 31%
	% of Last Year	 45%
HERON	% of Capacity	 40%
	% of Average	 58%
	% of Last Year	 59%
LAKE AVALON	% of Capacity	 5%
	% of Average	 10%
	% of Last Year	 11%
NAVAJO	% of Capacity	 48%
	% of Average	 66%
	% of Last Year	 62%
SANTA ROSA	% of Capacity	 3%
	% of Average	 20%
	% of Last Year	 76%
SUMNER	% of Capacity	 14%
	% of Average	 32%
	% of Last Year	 107%

STREAMFLOW CONDITIONS FOR SELECTED LOCATIONS IN NEW MEXICO DROUGHT MONITORING TASK FORCE

U.S. GEOLOGICAL SURVEY, ALBUQUERQUE, NM

Streamflow conditions for January 2003 increased slightly on unregulated streams in the Rio Grande basin, decreased slightly in the Arkansas and San Juan basins. The Pecos and Gila basins remained about the same in New Mexico. The 2003 water year to date (YTD) percent of average streamflow volumes are increasing since November 2002. The YTD streamflow was significantly below average Statewide; of course streamflows were augmented from releases from upstream reservoirs.

Streamflow plots shown below for selected locations in New Mexico show that the daily mean discharge for water year 2003 is below average to significantly below average except for the Rio Chama, Animas and Pecos Rivers.

<u>Streamflow-gaging station</u>	<u>Streamflow in percent of average-----</u>	
	<u>January-2003</u>	<u>Water year to date</u>
Arkansas River Basin		
07203000 Vermijo River near Dawson	33	27
07216500 Mora River near Golondrinas	20	20
07221500 Canadian River near Sanchez	10	8
Rio Grande Basin		
08263500 Rio Grande near Cerro	64	43
08269000 Rio Pueblo de Taos near Taos	78	64
08279000 Embudo Creek at Dixon	81	58
08284100 Rio Chama near La Puente	128 a	82
08313000 Rio Grande at Otowi Bridge	58	46
Pecos River Basin		
08378500 Pecos River near Pecos	98 a	73
08387000 Rio Ruidoso at Hollywood	46	36 e
08396500 Pecos River near Artesia	88	52
San Juan River Basin		
09364500 Animas River at Farmington	79	77
Gila River Basin		
09430500 Gila River near Gila	43	35
09444000 San Francisco River near Glenwood	56	57

e- estimated

a- backwater from ice

All data provisional

FSA Drought Actions

Discussion - The “Agricultural Assistance Act of 2003” included as part of the 2003 Appropriations Bill has been sent to the President for signature. If signed, the following programs will be authorized to provide drought assistance to New Mexico producers:

- **Crop Disaster Assistance** – provides disaster payments for crop losses for either 2001 or 2002 – a producer will choose which year. Covers quantity and quality losses.
- **Livestock Assistance** – expands the eligibility for the 2002 Livestock Compensation Program (LCP). Provides for a Livestock Assistance Program that provides payments to livestock producers for grazing losses in a primary disaster county. Provides \$250 million in CCC funding and reduces LAP benefits by the amount of assistance received under the LCP program.

Administration – Ensures that the reduction in Conservation Reserve Program (CRP) annual payments on CRP acres approved for haying and grazing in 2002 because of drought and other weather problems is waived for all producers.

US Bureau of Reclamation Summary

El Vado Prior and Paramount Storage

Prior and Paramount storage is operating for the six Middle Rio Grande pueblos at El Vado Reservoir. The Department of Interior’s position is that this storage is not subject to the Rio Grande Compact restrictions of Article VII. Since storage has been in place, 5 to 6000 acre-feet (AF) have been accumulated. Future snow pack and Endangered Species Act (ESA) demands will influence the amount of storage each year. Last year, approximately 30,394 AF was stored.

2003 water leases under Reclamation’s Supplemental Water Leasing Program

In an effort to meet irrigation and ESA demands within the Middle Rio Grande Valley, the USBR has leased San Juan-Chama (SJC) Project water from willing sellers to supplement irrigation water and in-stream flows within the Middle Rio Grande. The following volumes have been purchased for use during 2003:

Jicarilla Apache Tribe - 6500 AF
San Juan Pueblo - 2000 AF
City of Belen - 300 AF
Village of Taos Ski Valley - 11 AF

Total – 8,811 AF

Pecos River Basin:

Brantley Reservoir Storage is 17,200 af approximately 50% of Average
Santa Rosa Lake Storage 12,900 af approximately 20% of Average
Lake Sumner 13,876 af approximately 20 % of Average.

The February 2003 Stream flow forecast identifies the most probable snow melt runoff as 50,000 AF or 94 % of the 30 year average (1971-2000).

Pecos ESA Issues:

The Bureau of Reclamation is currently bypassing 25 cfs from Sumner Dam. Inflow to Sumner Dam has varied from 74 cfs to 84 cfs, there is a net inflow to the reservoir of approximately 55 cfs or 110 AF per day. The Bureau of Reclamation is currently targeting 35 cfs at the Pecos River near Acme, NM gage.

Pecos RiverWare Model:

A RiverWare model has been developed for the Pecos River by the Bureau of Reclamation, NMISC and their consultants. The RiverWare model is a planning model and excels at comparing the difference between two scenarios. The model could be used for forecasting reservoir response, District operations, and stream flows. The model is still in the development stage, and any results should be viewed cautiously.

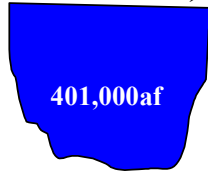
Reclamations Rio Grande and San Juan-Chama Projects “Water Buckets” webpage:

The graphic on the following page, along with other water resource information and data can be seen at the link:

<http://albuq.uc.usbr.gov/info/wo/SanJuanChama/Reservoirs/buckets.html>

Drafted 2/20/03 with 2/18//03 data

**Full (Active
Conservation)**



**Current
Content**



MRGCD



City of Alb.



**Other SJC
Contractors**

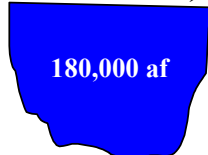


Federal



Heron

**Full (Active
Conservation)**



**Current
Content**



MRGCD SJC



**Prior & Par.
Native RG**



**Other SJC
Contractors**

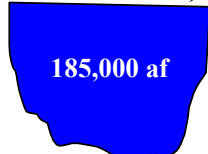


Rio Grande



El Vado

**Full (Active
Conservation)**



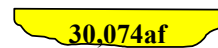
**Current
Content**



MRGCD SJC



**City of Alb.
SJC**



**Other SJC
Contractors**



**Conservation
Pool**



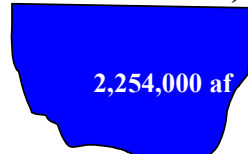
Abiquiu

Cochiti

**Current
Content**



**Full Combined (Active
Conservation)**



**Current Combined
Content**



**RG Project
Storage**



Elephant Butte & Caballo